

ROANOKE GAS COMPANY

Construction Inspection Program

Virginia Pipeline Safety Conference
October, 2016

Roanoke Gas Company Construction Inspection Program

- COMPANY DATA

- Approximately 60,000 customers
- ALMOST completed a 25-year bare steel/cast iron renewal program.
- January 1, 1992:
 - 209 miles of bare steel & cast iron combined
 - 25% of the system
- As of October 1:
 - 2,805 feet of bare steel left.

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Construction Inspection Program

- Construction History

- Through the 90's and early 2000's, we would normally average 2 crews on renewals doing 6-8 miles/year. There would be 4 to 8 crews on new construction depending on demand.
- For the last few years we have had 5 to 6 crews on renewals doing 12-15 miles/year. Another 2 to 4 crews on new construction.

- Record Keeping

- Required data was always captured on the back of a paper work order.
- Other information was collected on a paper inspection sheet
 - Basically a checklist to make sure all safety items were covered

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Construction Inspection Program

- Late in 2014 we started looking at a program called iAuditor as an option for recording inspections in the field.
- The first use was QA/QC on exposed main inspections.
- In 2015 we started evaluating the use for construction inspection.
- Late in 2015 we starting designing the form for use on plastic pipe installations.
- Two goals
 - 1. Evidence of a thorough inspection
 - 2. Capture data related to performance corrections for trending

Roanoke Gas Company Construction Inspection Program

- Concept:
 - Keep it simple to use
 - No need to capture data already required by the work order, except for some basic data like pipe size.
 - Many of the early versions had places to type in information; these are now drop-down options.
- Early Issues:
 - General use of the iPad
 - Some inspectors had learned to use the map, but were not comfortable with other applications.
 - Inspectors were hesitant to report issues identified.
 - Culture of “management” instead of “inspection”.

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Construction Inspection Program

- Data Tracking:
 - For tracking OQ Issues we defined 9 general task areas:
 - Pipe Installation
 - Tracer Wire Installation
 - Joining
 - Pressure Testing
 - Purging
 - Tapping
 - Squeezing
 - Meter Installation
 - Coating Application

- Opening Screen
 - Basic Job Info

Verizon LTE11:14 AM29%

CancelAuditingDone

Section 1 of 7 Information0/10%<>

Inspector	Response	...
WO # Tap here to edit		...
Jurisdiction	Response	...
Weather Info	Response	...
Temperature	Response	...
Conducted on 10/18/16, 11:12 AM	Date	...
Location Enter or locate your address	Locate	...

Next Section >

00:00:03Preview & Export

- OQ Task Screen

Verizon LTE11:15 AM29%

CancelAuditingDone

Section 7 of 7OQ Task1/250%<>

Did you witness a task being performed incorrectly or that required coaching

Y

N

Person Performing Task

RGC

CCM

Mastec

TaskResponse

Did you witness another task being performed incorrectly or that required coaching

Y

N

Mark As Complete

00:00:03Preview & Export

- OQ Tasks
 - General Options

Verizon LTE 11:15 AM 29%

Cancel Auditing Done

Section 7 of 7
OQ Task 1/2 50% < >

Did you witness a task being performed incorrectly or that required coaching

Person Performance
RG

Task

Did you witness a task being performed incorrectly or that required coaching

Multiple Choice

Done

Search 10 Responses

↓ A Z

Pipe Install ☐

Tracer Wire Install ☐

Joining ☐

Pressure Test ☐

Purge ☐

Tapping service tee ☐

Tapping Hi Vol Tee ☐

Squeezing ☐

Meter Install ☐

Complete

00:00:03 Preview & Export

- Inspector has chosen:
“Joining”

CancelAuditingDone

Section 7 of 7
OQ Task

1/333.33%

<>

Did you witness a task being performed incorrectly or that required coaching

Y

N

...

Person Performing Task

RGC

CCM

Mastec

...

Task

Joining

Response

...

Issue Witnessed

Response

...

Did you witness another task being performed incorrectly or that required coaching

Y

N

...

Mark As Complete

00:00:03

Preview & Export

- Type of Joining

Verizon LTE 11:17 AM 28%

Cancel Auditing Done

Section 7 of 7 OQ Task 1/3 33.33% < >

Did you witness a task being performed incorrectly or that required coaching

Person Performance RG

Task
☐ Joining

Issue Witnessed

Did you witness a task being performed incorrectly or that required coaching

Multiple Choice

Search 7 Responses

EF

BF-Man

BF-Hyd

Mech Stab

Mech Comp

Mech Bolted Fitting

Mech Flange

Complete

00:00:03 Preview & Export

- Inspector chose:
“Mechanical Stab”
- Options for that
specific joining
method

Verizon LTE 11:17 AM 28%

Cancel Auditing Done

Section 7 of 7
OQ Task 2/4 50% < >

Did you witness a task being performed incorrectly or that required coaching

Done Multiple Choice

Search 6 Responses

Pipe Not Clean ☐

Pipe Not Cut Square ☐

Pipe Not Checked for Scratches ☐

Not Chamfered ☐

Not Marked Properly ☐

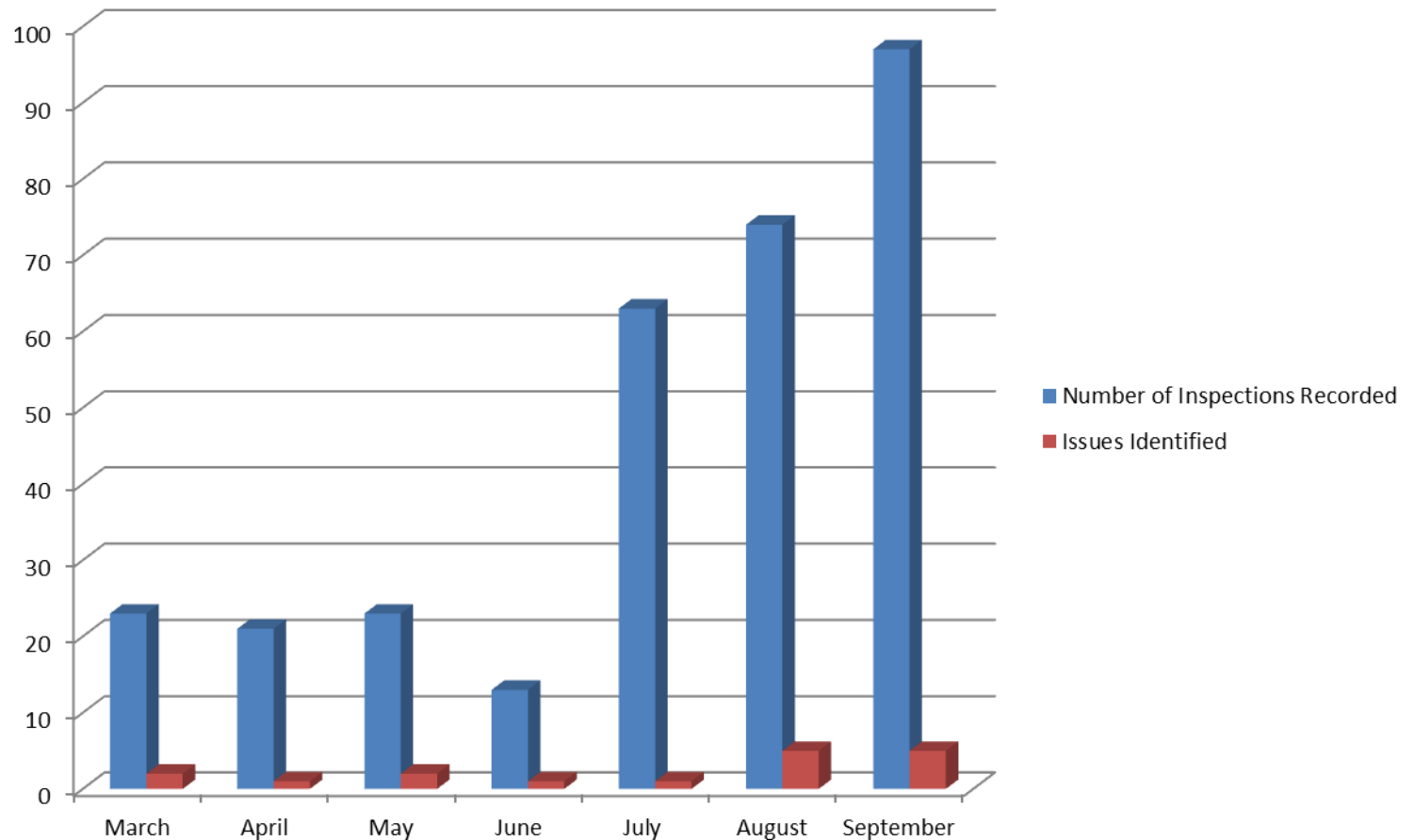
Not Within Mark ☐

Mark As Complete

00:00:03 Preview & Export

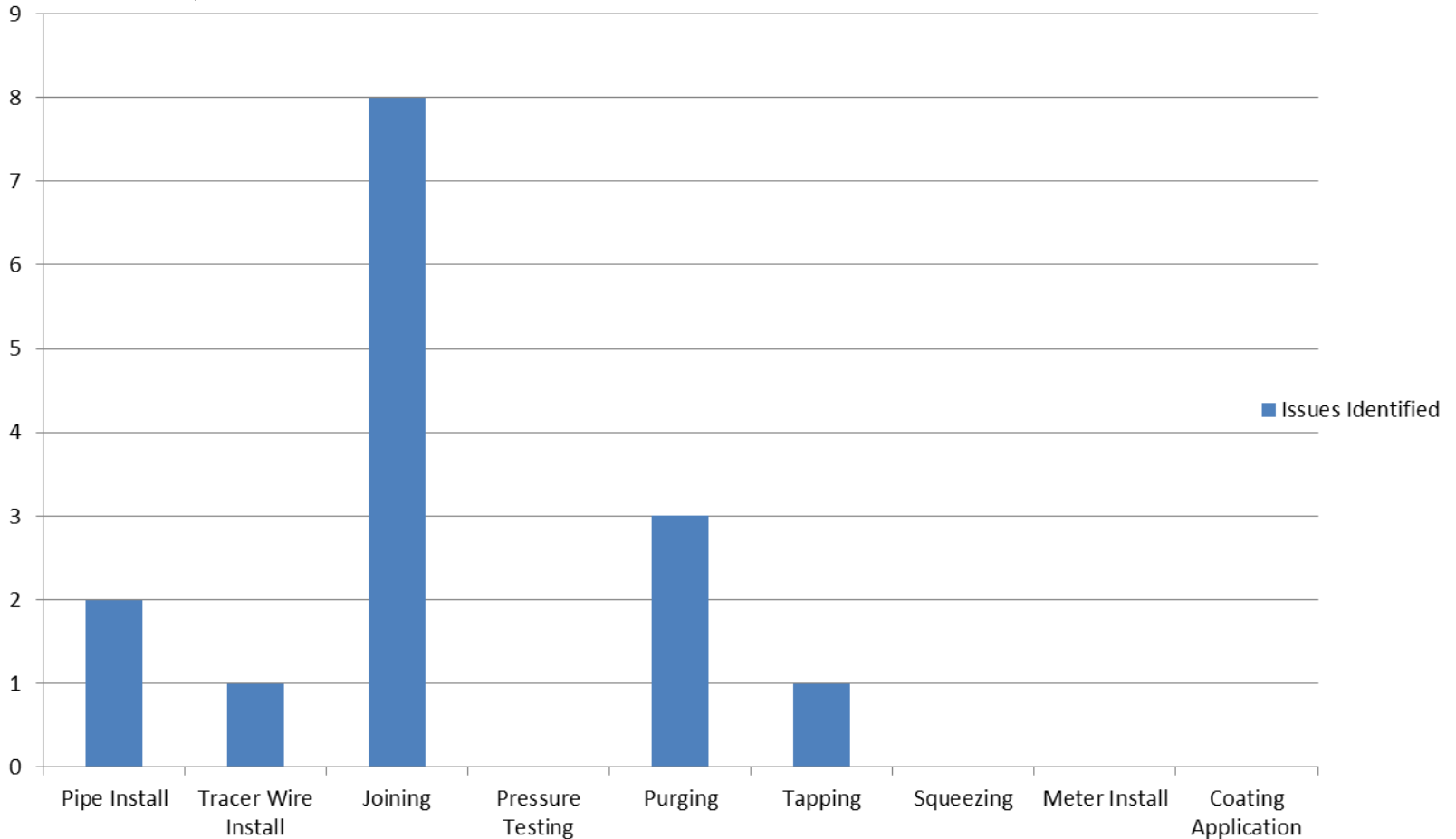
Roanoke Gas Company Construction Inspection Program

- Data



Roanoke Gas Company Construction Inspection Program

- Data – OQ Issues Identified



Roanoke Gas Company Construction Inspection Program

- What we have learned:
 - Make sure employees know how to use the technology you make available.
 - Define the difference between “Inspector” and “Coordinator” or “Project manager”.
 - You can change culture.
 - Most of our inspectors have 20+ years experience. It took several months to develop trust in the system and change their outlook on it, but we have made significant progress.